COUNTERMEASURE TRACKING SYSTEMS (CTS)

INVENTORY DATA EXCHANGE SPECIFICATION

RELEASE 1.0 – VERSION 1.1

05/22/2012

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VERSION HISTORY

	Implemented By	Revision Date	Approved By	Approval Date	Reason
1.1	Betty H. Baker[1]	05/22/2012			Publication with initial application release
1.0	Betty H. Baker	10/27/2011			Initial publication to project areas

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1   INTRODUCTION

During the 2009 H1N1 influenza pandemic event, there was a need for increased visibility of countermeasure inventory down to the local point-of-dispensing level. This information was used to make critical decisions on the allocation and distribution of antiviral drugs and personal protective equipment. However, this information proved very difficult to obtain, highlighting the need for a system that state and local public health departments could use to report medical countermeasure inventory. As a result, the Centers for Disease Control and Prevention's (CDC) Division of Strategic National Stockpile (DSNS) partnered with CDC's Division of Informatics Solutions and Operations Countermeasure Tracking Systems (CTS) program to build a nationwide CDC Inventory Management and Tracking System (IMATS). The vision of IMATS is to increase the capacity of all levels of public health to track and manage inventory of medical and non-medical countermeasures during daily operations or an emergency response event.

To support the needs of CDC Public Health Emergency Preparedness (PHEP) cooperative agreement-funded project areas having their own inventory management systems, CDC provides an Inventory Data Exchange (IDE) process for accepting counts of on-hand inventory items. CDC will issue an electronic request message for counts of specific on-hand inventory items. The request will specify the frequency of the reports and the products that should be reported. Project areas having their own inventory management systems must provide counts by electronically transmitting (either automated or manually) a message containing the requested information to CDC. These project areas must use the data exchange protocol described in this document to receive the request message and send the report message.

1.1   DOCUMENT SCOPE

This document provides the data exchange information necessary for project areas to send a message of on-hand inventory information to CDC. This document describes the process by which CDC will request inventory information and the process by which the project areas will reply with that information. The document includes specifications for the data elements, message structures, and transfer mechanisms required by these processes.

1.2   AUDIENCE

This document is designed for use by people responsible for messaging analysis and technical implementation for any PHEP-funded project area working to send on-hand inventory information to CDC.

1.3   TERMS AND DEFINITIONS

Terms referenced throughout the document include:

- Countermeasure Tracking Systems (CTS) – A CDC program consisting of multiple interoperating components that enhance the capacity of federal, state, and local public health agencies to track and manage countermeasure inventory and usage to support

both daily operations and all-hazards events. The four system components of the CTS program interoperate to improve communications and event response efficiency while still functioning independently, recognizing the unique requirements and use cases for each system. Collectively, the data consolidated from these systems can show population coverage, numbers of untreated individuals, drug and equipment shortages, need for resupply, and more.

- Extensible Markup Language (XML) – A set of rules using a very flexible text format for encoding documents in machine-readable form.

- Facility – The place where inventory is stored.

- Inventory Data Exchange (IDE) – The process used for exchanging requests for inventory counts from CDC to project areas and reports of inventory counts from project areas to CDC.

- Inventory Management and Tracking System (IMATS) – The IMATS solution provides state and local public health providers with a tool to track medical and non-medical countermeasure inventory and supplies during daily operations or an event. The solution tracks quantity of inventory, monitors reorder thresholds, and facilitates warehouse operations, including receiving, staging, and storing inventory.

- Inventory report – A collection of inventory counts for a specific project area and reporting date usually generated by the project area and transmitted to CDC.

- Inventory request – A request made by CDC to the project areas for a report of inventory counts of specific products at a specific frequency.

- National Drug Code (NDC) – The unique numeric identifier for a packaged pharmaceutical as recognized by the Food and Drug Administration (FDA).

- Non-pharmaceutical – A product that is not a prescription drug. Examples include personal protective equipment and medical/surgical supplies or equipment.

- Personal protective equipment (PPE) – A device or article of clothing used to protect a person from contact with harmful substances. Examples include N95 respirators, surgical gloves, surgical masks, and biohazard suits.

- Pharmaceutical – A drug or medicine used in medical treatment.

- Product – A pharmaceutical or non-pharmaceutical inventory item that is potentially useful in response to a public health event.

- Project area – A recipient of funds from CDC's PHEP cooperative agreement. The 62 recipients include 50 states, four directly funded localities and eight insular areas (i.e. territories and freely associated states).

- Public health event – An act or series of acts used to prepare for, counteract, or offset a possible (preparedness) or actual (response) agent release or disease outbreak.

- Public Health Information Network (PHIN) – A national initiative to improve the capacity of public health to use and exchange information electronically by promoting the use of standards and defining functional and technical requirements.

- Reporting date – The date and time at which a count of inventory is taken.

- Reporting frequency – The frequency with which the project areas must send an inventory report to CDC for an inventory request.

1.4   CONTACTS

PHIN Help Desk
Phone: 1-800-532-9929
Email: PHINTech@cdc.gov

CTS Team
Email: CTSHelp@cdc.gov

2 OVERVIEW

Understanding the availability of critical inventory will allow CDC to better support the project areas during public health events. The IDE process consists of the following steps:

1. CDC REQUEST FOR INVENTORY DATA

    CDC will request inventory data from the project areas using an inventory request message.

2. PROJECT AREA REPORT OF INVENTORY DATA

    Project areas will reply by reporting the inventory data requested using an inventory report message.

3. CDC NOTIFICATION OF REPORT PROCESSING

    CDC will provide project areas notification of success or failure of each inventory report message including any detailed error information.

2.1 CDC REQUEST FOR INVENTORY DATA

CDC will provide to the project areas a request in electronic format for a report of inventory counts. The request specifies the list of products to be reported and the reporting frequency. The request will be provided in the message formats described in this document.

The reporting frequency may be monthly, weekly, or possibly more frequently if CDC determines the necessity. If reporting is more frequent than weekly, a frequency of "daily" and a list of the reporting days of the week will be specified in the request.

CDC will issue a new request whenever the reporting frequency and/or the list of reportable products changes. This new request supersedes the previous request.

2.2 PROJECT AREA REPORT OF INVENTORY DATA

Every project area will extract inventory counts of the requested products at each facility, including inventory located at regional distribution sites and local dispensing facilities. The project area will then send the requested information to CDC. The counts will be provided in the message format described in this document.

- Each project area sending data to CDC is responsible for submitting one set of counts for each reporting date for all requested products at all inventory facilities in the project area.

- A full replacement of all inventory counts of requested products is required for each reporting date.

- All available inventory of the requested products must be provided in the report, including products received from the federal government, purchased by the project area from other suppliers, donated to the project area, and obtained by any other means.

- After the project area receives an inventory request message, it will send its first inventory report message on the next valid reporting date.

- After the project area sends its first inventory report message, it will continue to send additional inventory report messages at the requested reporting frequency.

  o If the reporting frequency is monthly, the report should be compiled as of 11:59 p.m. Eastern Standard Time/Eastern Daylight Time (EST/EDT) on the last day of every month and submitted to CDC by 11:59 p.m. EST/EDT two business days after compilation.

  o If the reporting frequency is weekly, the report should be compiled as of 11:59 p.m. EST/EDT every Wednesday and submitted to CDC by 11:59 p.m. EST/EDT on the following Friday.

  o If the reporting frequency is daily, the report should be compiled as of 11:59 p.m. EST/EDT on each requested day and submitted to CDC by 10 a.m. EST/EDT the following business day.

The table below depicts the reporting schedule for the possible reporting frequencies.

Figure 2-1 - IDE Reporting Schedule

Frequency	Compile As Of		Submit By	
	Time	**Day**	**Time**	**Day**
Monthly	11:59 p.m. EST/EDT	Last day of every month	11:59 p.m. EST/EDT	Second business day of following month
Weekly	11:59 p.m. EST/EDT	Every Wednesday	11:59 p.m. EST/EDT	Following Friday
Daily	11:59 p.m. EST/EDT	Every requested day	10:00 a.m. EST/EDT	Following day

2.3 DATA TYPES

The definitions for the data types are described here:

1. Alphanumeric – Using the Latin characters [A-Z], [0-9], [@ # & * ( ) - + : < > . , ?]

2. Integer – Using the characters [+,-], [0-9] appearing 0 or more times

3. Date time – Formatted as YYYY-MM-DD HH24:MI:SS

   a. Year format: YYYY – exactly 4 digits [0-9]

   b. Month format: MM – exactly 2 digits [0-9] which gives values from 01 to 12

    c.   Day format: DD – exactly 2 digits [0-9] which gives values from 01 to 31

    d.   24-hour format: HH24 – exactly 2 digits [0-2], [0-9] which gives values from 00 to 23

    e.   Minutes format: MI – exactly 2 digits [0-9] which gives values from 00 to 59

    f.   Seconds format: SS – exactly 2 digits [0-9] which gives values from 00 to 59

    g.   All times are EST/EDT.

    h.   Must be a valid reporting date based on the reporting frequency of the active CDC request.

2.4 MESSAGE FORMATS

2.4.1 DELIMITED TEXT FORMAT

Please note the following requirements for using the delimited text format:

- The vertical bar or pipe character ("|") must be used to delimit fields and cannot occur within a data element.

- The semicolon (";") is used to delimit values within a field.

- Alphanumeric data values must be provided in UPPER CASE.

- There should be no leading or trailing white space for any values.

- An ASCII carriage return ("<CR>" with ASCII value x0D) indicates the end of a record.

2.4.2 XML FORMAT

Please note the following requirements for using XML:

- All tag names are case sensitive. Note the use of camelCase where the second (and all subsequent) words in a tag name are capitalized.

- Alphanumeric data values must be provided in UPPER CASE.

- There should be no leading or trailing white space for any values.

- The special characters ampersand (" & "), less-than (" < "), greater-than (" > "), double-quote (" " "), and single-quote (" ' ") must be escaped if they appear in data elements. For example, "&" is used in place of "&" in the productDescription tag below.

```
<productDescription>
    MASK, N95 PARTICULATE RESPIRATOR/SURGICAL, MED/LG, NIOSH &amp; FDA CERTIFIED
</productDescription>
```

- All leading and trailing white space will be ignored. For example, in the XML productDescription tag below, the value is simply "SURGICAL MASK, LARGE" with no leading or trailing spaces.

```
<productDescription>
      SURGICAL MASK, LARGE
</productDescription>
```

More detailed information on XML, including escaping of special characters, may be found at http://www.xmlnews.org/docs/xml-basics.html.

2.5 PARTICIPATION IN INVENTORY DATA EXCHANGE

Participating in IDE requires the completion of a series of start-up activities by the project areas. Appendix C: IDE Startup Guide contains the list of steps the project areas must take in completing the start-up activities.

3   CDC INVENTORY REQUEST MESSAGE

CDC will provide an inventory request message to the project areas. The message will include a list of products on which the project areas are to report and the frequency of the reporting process.

3.1   INVENTORY REQUEST MESSAGE RECORDS

The inventory request message includes an identification record and commonly one or more product records. The identification record is a header and occurs once at the beginning of the message. Zero or more product records specifying the products to be reported follow the identification record. There is one product record for each product requested.

3.1.1   INVENTORY REQUEST MESSAGE: IDENTIFICATION RECORD

The data elements for the inventory request message identification record are listed in the following table. There will be one identification record in the inventory request message.

Figure 3-1 – Inventory Request Message Identification Record Data Definitions

#	Data Element Name	Description	Data Type	Maximum Length	Note
1.	Message Type	The type of message	Alphanumeric	50	Possible Values: INVENTORY COUNT REQUEST INVENTORY COUNT STOP See **Notes on message types** below.
2.	Message Version	The version number for the message.	Alphanumeric	10	Current value: 1.0
3.	Request ID	The unique identifier assigned to the request	Integer	10	
4.	Request Name	The name of the request	Alphanumeric	100	
5.	Reporting Frequency	The frequency of recurring reports for this request	Alphanumeric	10	Possible values: MONTHLY WEEKLY DAILY
6.	Days	A list of days when the reporting is to be compiled	Alphanumeric	60	Elements in list will be delimited by a semicolon (";") with no imbedded spaces. If Reporting Frequency is MONTHLY or WEEKLY, will be blank. If Reporting Frequency is DAILY, will be a list of days on which reporting should occur (e.g., "MONDAY;FRIDAY").

#	Data Element Name	Description	Data Type	Maxi- mum Length	Note
7.	Product Count	The number of product records in the message	Integer	10	

Notes on message types: CDC will send an inventory request message displaying "INVENTORY COUNT STOP" in the message type field only if it becomes necessary to discontinue or suspend future reporting. The product count for this request will be zero and the request will contain no products. Project areas should discontinue the sending of inventory report messages until CDC provides a new inventory request message.

3.1.2 INVENTORY REQUEST MESSAGE: PRODUCT RECORD

The data elements for the inventory request message product record are listed in the following table. There will be one record for each non-pharmaceutical product requested and one record for each NDC of a pharmaceutical product requested.

Figure 3-2 – Inventory Request Message Product Record Data Definitions

#	Data Element Name	Description	Data Type	Maxi- mum Length	Note
1.	Product Name	The non-proprietary name of the product to report	Alphanumeric	120	For pharmaceuticals, entry is the generic name of the product. See **Notes on product name** below.
2.	Brand Name	The proprietary name for this product	Alphanumeric	120	If product is a non-pharmaceutical, entry will be blank.
3.	NDC	The unique identifier of the packaged product as recognized by the FDA	Alphanumeric	13	If product is a non-pharmaceutical, entry will be blank. For pharmaceuticals, entry will be the NDC recognized by the FDA. See **Notes on NDC** below.

Notes on product name: The nature of an event determines the products that will be included in a request. The product name for non-pharmaceutical products will be declared at the time a request is created.

Notes on NDC: The FDA-recognized NDC allows CDC to specify packaged pharmaceutical products precisely. It consists of three segments (labeler code, product code, and packaging code) separated by hyphens.

The FDA has recently revised the NDC product file definitions. Extra leading zeroes and asterisks have been eliminated from the NDC. The new NDC formats for labeler code-product code-package code are now 4-4-2, 5-4-1, and 5-3-2. In order to ease the transition from the old format to the new format, the inventory request message will contain records in both old NDC format and new NDC format for any requested product whose NDC previously had extra leading zeroes or asterisks.

3.2   INVENTORY REQUEST MESSAGE FORMATS

CDC will provide inventory request messages in both XML encoded format and delimited text format. Each project area must choose its desired format.

3.2.1   INVENTORY REQUEST MESSAGE: XML ENCODED FORMAT

The following figures illustrate the syntax for the XML encoded format of the inventory request message. The XML schema document (XSD) for this message format can be found in Appendix B: XML Schemas under B1.1 Inventory Request Message XML Schema Document. The document type definition (DTD) for this message format can be found in Appendix B: XML Schemas under B1.2 Inventory Request Message Document Type Definition.

Figure 3-3 – XML Syntax for Inventory Request Message

```xml
<?xml version="1.0" encoding="UTF-8" ?>
 <request>
        <identification>
                <messageType>MESSAGE TYPE</messageType>
                <messageVersion>MESSAGE VERSION</messageVersion>
                <requestId>REQUEST ID</requestId>
                <requestName>REQUEST NAME</requestName>
                <reportingFrequency>REPORTING FREQUENCY</reportingFrequency>
                <days>DAYS</days>
                <productCount>PRODUCT COUNT</productCount>
        </identification>
        <product>
                <productName>PRODUCT NAME 1</productName>
                <brandName>BRAND NAME 1</brandName>
                <ndc>NDC 1</ndc>
        </product>
        <product>
                <productName>PRODUCT NAME 2</productName>
                <brandName>BRAND NAME 2</brandName>
                <ndc>NDC 2</ndc>
        </product>
 </request>
```

```
<?xml version="1.0" encoding="UTF-8" ?>
<request>
        <identification>
                <messageType>INVENTORY COUNT REQUEST</messageType>
                <messageVersion>1.0</messageVersion>
                <requestId>12345</requestId>
                <requestName>EVENT 1</requestName>
                <reportingFrequency>DAILY</reportingFrequency>
                <days>MONDAY;WEDNESDAY</days>
                <productCount>2</productCount>
        </identification>
        <product>
                <productName>PHENYLPROPANOLAMINE HYDROCHLORIDE</productName>
                <brandName>ROLATUSS SR TABLET</brandName>
                <ndc>00904-1198-40</ndc>
        </product>
        <product>
                <productName>N95 RESPIRATOR</productName>
        </product>
</request>
```

3.2.2   INVENTORY REQUEST MESSAGE: DELIMITED TEXT FORMAT

The following figures illustrate the syntax for the delimited text format of the inventory request message.

Figure 3-5 – Delimited Text Syntax for Inventory Request Message

```
MESSAGE TYPE|MESSAGE VERSION|REQUEST ID|REQUEST NAME|REPORTING
FREQUENCY|DAYS|PRODUCT COUNT<CR>
PRODUCT NAME|BRAND NAME|NDC<CR>
```

Figure 3-6 – Delimited Text Sample of Inventory Request Message

```
INVENTORY COUNT REQUEST|1.0|12345|EVENT 1|DAILY|MONDAY;WEDNESDAY|3<CR>
PHENYLPROPANOLAMINE HYDROCHLORIDE|ROLATUSS SR TABLET |00904-1198-40<CR>
PHENYLPROPANOLAMINE HYDROCHLORIDE|ROLATUSS SR TABLET |00904-1198-60<CR>
N95 RESPIRATOR||<CR>
```

3.3   INVENTORY REQUEST MESSAGE TRANSFER MECHANISM

CDC will provide a new inventory request message when a change is made to the reporting frequency and/or the list of requested products. Each project area may choose one of the following transfer mechanisms for obtaining the new inventory request message:

- CDC emails the inventory request message to the project area.

- CDC transmits the inventory request message to the project area via the Public Health Information Network Messaging System (PHINMS).

- The project area manually downloads the inventory request message.

3.3.1 INVENTORY REQUEST MESSAGE: EMAIL (INTERIM TRANSFER METHOD)

In order to expedite the initial IDE release, CDC will send an email containing the inventory request message to project areas.

Note: The email transfer method will no longer be available once the manual download transfer method is available.

3.3.2 INVENTORY REQUEST MESSAGE: AUTOMATIC TRANSMISSION

CDC supports a mechanism for automatically transmitting messages to the project areas. The automatic message transfer uses PHINMS. CDC will transmit the inventory request message to each participating project area via PHINMS each time a new inventory request message is created.

See the PHINMS page on the PHIN website for more information on connecting using PHINMS for secure messaging with CDC.
(http://www.cdc.gov/phin/activities/applications-services/phinms/index.html).

3.3.3 INVENTORY REQUEST MESSAGE: MANUAL DOWNLOAD (LATER RELEASE)

CDC will place the inventory request message in both XML and delimited text format on a website available to the project areas. CDC will then notify each project area electing this option of its availability and location. The project area may access the website and download the inventory request message.

4   PROJECT AREA INVENTORY REPORT MESSAGE

For each reporting date specified by an inventory request message, the project area must compile and send an inventory report message of all requested on-hand inventory counts located at all facilities in the project area. The inventory report message is uniquely identified by the project area and the reporting date.

4.1   INVENTORY REPORT MESSAGE RECORDS

The inventory report message includes an identification record and zero, one, or more count records. The identification record is a header and occurs once at the beginning of the message. Zero, one or more count records containing inventory count information follow the identification record. There is one count record for each unique facility/product/lot number/units per case reported.

4.1.1   INVENTORY REPORT MESSAGE: IDENTIFICATION RECORD

The data elements for the inventory report message identification record are listed in the following table. There must be exactly one identification record in the inventory report message.

If there is no on-hand inventory for any requested product in any facility, the project area must send an inventory report message containing only an identification record with a zero in the record count data element.

Figure 4-1 –Inventory Report Message Identification Record Data Definitions

#	Data Element Name	Description	Data Type	Maxi-mum Length	Req'd	Format/Validation/Note
1.	Message Type	The type of message	Alphanumeric	50	Yes	Valid Value: INVENTORY COUNT REPORT
2.	Message Version	The version number of the message	Alphanumeric	10	Yes	Current Value: 1.0
3.	Request ID	The identifier of the CDC request with which this report is associated	Integer	10	Yes	Validation: Must correspond to the request id of the active CDC request.
4.	Project Area	The code identifying the project area reporting the inventory counts	Alphanumeric	5	Yes	Validation: See Section A2 Project Area in Appendix A: Valid Value Lists.

#	Data Element Name	Description	Data Type	Maximum Length	Req'd	Format/Validation/Note
5.	Reporting Date	The ending date and time of the reporting period of this message	Date time	19	Yes	Format: YYYY-MM-DD HH24:MI:SS Validation: EST/EDT Must be a valid reporting date based on the reporting frequency of the active CDC request. (See Section 2.3 Data Types above.)
6.	Creation Date	The date and time at which the message was created on the originating system.	Date time	19	Yes	Format: YYYY-MM-DD HH24:MI:SS Validation: EST/EDT (See Section 2.3 Data Types above.)
7.	Report Count	The number of count records in the message	Integer	10	Yes	Validation: Must agree with the number of actual count records in the message.

4.1.2 INVENTORY REPORT MESSAGE: COUNT RECORD

The data elements for the inventory report message count record are listed in the following table. There will be one count record for each uniquely identifiable facility/product/lot number/units per case.

Figure 4-2 – Inventory Report Message Count Record Data Definitions

#	Data Element Name	Description	Data Type	Maximum Length	Req'd	Format/Validation/Note
1.	Facility Name	The name of the facility having the product on hand	Alphanumeric	120	Yes	
2.	Location Jurisdiction Type	The type of jurisdiction for the inventory location	Alphanumeric	50	Yes	Validation: Valid values are: STATE REGIONAL LOCAL

#	Data Element Name	Description	Data Type	Maxi-mum Length	Req'd	Format/Validation/Note
3.	Facility Type Code	The code identifying the type of facility	Alphanumeric	20		Validation: Required and allowed for local facilities only See Section A1 Facility Type in Appendix A: Valid Value Lists.
4.	ZIP Code	The ZIP code for the facility	Alphanumeric	10	Yes	Format: 99999-9999 Validation: Provide ZIP code or ZIP plus four. If providing ZIP code, supply only five characters.
5.	Product Description	The description of the product	Alphanumeric	500	Yes	
6.	NDC	The unique identifier of the product recognized by the FDA	Alphanumeric	13		Validation: Required for pharmaceuticals. Must match an NDC in the active CDC Inventory Count Request.
7.	Lot Number	The lot number as it appears on the product	Alphanumeric	50		Validation: Required for pharmaceuticals
8.	Expiration Year	The expiration year on the product	Alphanumeric	4		Format: YYYY Validation: Required for pharmaceuticals
9.	Expiration Month	The expiration month on the product	Alphanumeric	2		Format: MM Validation: Required if expiration year is provided Not allowed if expiration year is not provided Must be valid month (01 – 12).

#	Data Element Name	Description	Data Type	Maxi-mum Length	Req'd	Format/Validation/Note
10.	Expiration Day	The expiration day on the product.	Alphanumeric	2		Format: DD Validation: Allowed if and only if expiration year is provided Must be a valid day for the expiration month if provided No expiration day when year and month are provided indicates last day of the month
11.	Product Name	The non-proprietary name of the product	Alphanumeric	120		Validation: Required for non-pharmaceutical products Must match a product name in the active CDC Inventory Count Request..
12.	Catalog/Stock Number	A code used by the project area to identify the product	Alphanumeric	50		Validation: Allowed for non-pharmaceutical products only
13.	Size	The size of the product (e.g., SMALL, MEDIUM, LARGE)	Alphanumeric	50		Validation: Allowed for non-pharmaceutical products only
14.	Units per Case	The number of dispensable units of the product in one case	Integer	10		Validation: Provide EITHER units per case
15.	On-Hand Cases	The number of cases of the product at the facility	Integer	10		plus on-hand cases OR on-hand units.
16.	On-Hand Units	The number of dispensable units of the product at the facility	Integer	10		***Do not provide all three fields***. See ***Notes on Inventory Counts*** below.

Notes on Inventory Counts: The purpose of the last three fields in this record is to provide the countable quantity of the specific product on hand at the facility. CDC can accept either the number of units inside a case and the number of cases, or the total number of units. A unit is either a single instance of a product, such as an N95 respirator, or a dispensable package of the product, such as a bottle, a blister-pack, a vial, or a box (for example, a box of syringes).

The third component of the NDC for a pharmaceutical identifies the packaging for one unit of the product.

4.2   INVENTORY REPORT MESSAGE FORMATS

CDC will accept inventory report messages in both XML encoded format and delimited text format. Each project area must identify its desired format.

Syntax illustrations and sample messages for the two supported message formats appear below. The examples are for illustration purposes only.   The content of the examples is fictitious and should not be used to report actual inventory counts.

4.2.1 INVENTORY REPORT MESSAGE: XML ENCODED FORMAT

The following figures illustrate the syntax for the XML encoded format of the inventory report message. The XSD for this message format can be found in Appendix B: XML Schemas under B2.1 Inventory Report Message XML Schema Document. The DTD for this message format can be found in Appendix B: XML Schemas under B2.2 Inventory Report Message Document Type Definition.

Figure 4-3 – XML Syntax for Inventory Report Message

```xml
<?xml version="1.0" encoding="UTF-8" ?>
<report>
        <identification>
                <messageType>MESSAGE TYPE</messageType>
                <messageVersion>MESSAGE VERSION</messageVersion>
                <requestId>REQUEST ID</requestId>
                <projectArea>PROJECT AREA</projectArea>
                <reportingDate>REPORTING DATE</reportingDate>
                <creationDate>CREATION DATE</creationDate>
                <reportCount>RECORD COUNT</reportCount>
        </identification>
        <count>
                <facilityName>FACILITY NAME</facilityName>
                <locationJurisdictionType>LOCATION JURISDICTION TYPE</locationJurisdictionType>
                <facilityTypeCode>FACILITY TYPE CODE</facilityTypeCode>
                <zipCode>ZIP CODE</zipCode>
                <productDescription>PRODUCT DESCRIPTION</productDescription>
                <ndc>NDC</ndc>
                <lotNumber>LOT NUMBER</lotNumber>
                <expirationYear>EXPIRATION YEAR</expirationYear>
                <expirationMonth>EXPIRATION MONTH</expirationMonth>
                <expirationDay>EXPIRATION DAY</expirationDay>
                <productName>PRODUCT NAME</productName>
                <catalogStockNumber>CATALOG STOCK NUMBER</catalogStockNumber>
                <size>SIZE</size>
                <unitsPerCase>UNITS PER CASE</unitsPerCase>
                <onHandCases>ON HAND CASES</onHandCases>
                <onHandUnits>ON HAND UNITS</onHandUnits>
        </count>
        <count>
                <facilityName>FACILITY NAME</facilityName>
                <locationJurisdictionType>LOCATION JURISDICTION TYPE</locationJurisdictionType>
                <facilityTypeCode>FACILITY TYPE CODE</facilityTypeCode>
                <zipCode>ZIP CODE</zipCode>
                <productDescription>PRODUCT DESCRIPTION</productDescription>
                <ndc>NDC</ndc>
                <lotNumber>LOT NUMBER</lotNumber>
                <expirationYear>EXPIRATION YEAR</expirationYear>
                <expirationMonth>EXPIRATION MONTH</expirationMonth>
                <expirationDay>EXPIRATION DAY</expirationDay>
                <productName>PRODUCT NAME</productName>
                <catalogStockNumber>CATALOG STOCK NUMBER</catalogStockNumber>
                <size>SIZE</size>
                <unitsPerCase>UNITS PER CASE</unitsPerCase>
                <onHandCases>ON HAND CASES</onHandCases>
                <onHandUnits>ON HAND UNITS</onHandUnits>
        </count>
</report>
```

Figure 4-4 – XML Sample of Inventory Report Message

```
<?xml version="1.0" encoding="UTF-8" ?>
<report>
        <identification>
                <messageType>INVENTORY COUNT REPORT</messageType>
                <messageVersion>1.0</messageVersion>
                <requestId>12345</requestId>
                <projectArea>AL</projectArea>
                <reportingDate>2011-05-01 23:59:00</reportingDate>
                <creationDate>2011-05-02 00:15:00</creationDate>
                <reportCount>2</reportCount>
        </identification>
        <count>
                <facilityName>Alabama RSS</facilityName>
                <locationJurisdictionType>STATE</locationJurisdictionType>
                <zipCode>36106</zipCode>
                <productDescription>DOXYCYCLINE 100MG ORAL TABLET, #20TAB UNIT OF USE
                </productDescription>
                <ndc>24658-0220-20</ndc>
                <lotNumber>65047A </lotNumber>
                <expirationYear>2011</expirationYear>
                <expirationMonth>09</expirationMonth>
                <expirationDay>15</expirationDay>
                <unitsPerCase>200</unitsPerCase>
                <onHandCases>50</onHandCases>
        </count>
        <count>
                <facilityName>HUNTSVILLE PUBLIC HEALTH DEPARTMENT</facilityName>
                <locationJurisdictionType>LOCAL</locationJurisdictionType>
                <facilityTypeCode>LHD</facilityTypeCode>
                <zipCode>35801-1234</zipCode>
                <productDescription>
                    MASK, N95 PARTICULATE RESPIRATOR/SURGICAL, MED/LG, NIOSH &amp; FDA CERTIFIED
                </productDescription>
                <lotNumber>26511</lotNumber>
                <productName>N95 RESPIRATOR</productName>
                <catalogStockNumber>1860</catalogStockNumber>
                <size>MEDIUM/LARGE</size>
                <onHandUnits>5000</onHandUnits>
        </count>
</report>
```

4.2.2 INVENTORY REPORT MESSAGE: DELIMITED TEXT FORMAT

The following figures illustrate the syntax for the delimited text format of the inventory report message. Line breaks and indents in the sample records below are for readability only and are not included in the construction of a message.

Figure 4-5 – Delimited Text Syntax for Inventory Report Message

```
MESSAGE TYPE|MESSAGE VERSION|REQUEST ID|PROJECT AREA|REPORTING DATE|CREATION
DATE|REPORT COUNT<CR>
FACILITY NAME|LOCATION JURISDICTION TYPE|FACILITY TYPE CODE|ZIP CODE|PRODUCT DESCRIPTION|
    NDC|LOT NUMBER|EXPIRATION YEAR|EXPIRATION MONTH|EXPIRATION DAY|PRODUCT NAME|
    CATALOG STOCK NUMBER|SIZE|UNITS PER CASE| ON HAND CASES|ON HAND UNITS<CR>
```

Figure 4-6 – Delimited Text Sample for Inventory Report Message

```
INVENTORY COUNT REPORT|1.0|12345|AL|2011-05-01 23:00:00|2011-05-02 00:15:00!2<CR>
ALABAMA RSS|STATE||36106|DOXYCYCLINE 100MG ORAL TABLET, #20 TAB UNIT OF USE|
    24658-0220-20|23459|2012|12|31||||100|1000|<CR>
HUNTSVILLE PUBLIC HEALTH DEPARTMENT|LOCAL|LHD|35801-1234|
    MASK, N95 PARTICULATE RESPIRATOR/SURGICAL, MED/LG, NIOSH & FDA CERTIFIED ||26511||||
    N95 RESPIRATOR|1860|MEDIUM/LARGE|||5000<CR>
```

4.3   INVENTORY REPORT MESSAGE TRANSFER MECHANISM

CDC supports PHINMS secure messaging for receipt of inventory report messages. See the PHINMS   page   on   the   PHIN   website   for   more   information (http://www.cdc.gov/phin/activities/applications-services/phinms/index.html).

5   INVENTORY REPORT MESSAGE PROCESSING NOTIFICATION

CDC will send an e-mail notification if the inventory report message was successful or not successful. If the message is not successful, the e-mail notification will list any errors. Once corrected, the message can be resent.

APPENDIX A: VALID VALUE LISTS

Appendix A contains the lists of valid values for the facility type and project area data elements in the inventory report message.

A1 FACILITY TYPE

The following table lists the valid values for the **Facility Type Code** data element in Section 4.1.2 Inventory Report Message: Count Record

Figure A1 - 1 Facility Types

Facility Type Code	Facility Type
ALTCARE	Alternate Care Facility
COMMPHARM	Commercial Pharmacy
COMMCLNC	Community Clinic, Other (non-profit community clinics)
CORRECTIONS	Correctional Facilities (Fed / State / County / City)
EMS	Emergency Medical Services
FEDFAC	Federal Facilities (VA, DoD, Agencies)
FEDHLTHCLNC	Federally Qualified Community Health Clinic (HRSA funded)
HOSP	Hospital
HIS	Indian Health Service Center / Hospital
LHD	Local Health Department
NURSHOME	Nursing Home / Assisted Living Facilities
OTHR	Other
POD-C	Point of Dispensing (closed)
POD-O	Point of Dispensing (open)
PRIVPHYS	Private Physician(s)
STRGFAC	Storage Facility (for future deployment)
TRIBAL	Tribal Government
VISITNURS	Visiting Nurses / Home Health

A2 PROJECT AREA

The following table lists the valid values for the ***Project Area*** data type in Section 4.1.1 Inventory Report Message: Identification Record.

Figure A2 - 1 Project Areas

Value	Description	Value	Description
AK	Alaska	MP	Northern Mariana Islands
AL	Alabama	MS	Mississippi
AR	Arkansas	MT	Montana
AS	American Samoa	NC	North Carolina
AZ	Arizona	ND	North Dakota
CA	California	NE	Nebraska
CHI	Chicago	NH	New Hampshire
CO	Colorado	NJ	New Jersey
CT	Connecticut	NM	New Mexico
DC	District of Columbia	NV	Nevada
DE	Delaware	NY	New York
FL	Florida	NYC	New York City
FM	Micronesia	OH	Ohio
GA	Georgia	OK	Oklahoma
GU	Guam	OR	Oregon
HI	Hawaii	PA	Pennsylvania
IA	Iowa	PR	Puerto Rico
ID	Idaho	PW	Palau
IL	Illinois	RI	Rhode Island
IN	Indiana	SC	South Carolina
KS	Kansas	SD	South Dakota
KY	Kentucky	TN	Tennessee
LA	Louisiana	TX	Texas
LOS	Los Angeles	UT	Utah
MA	Massachusetts	VA	Virginia
MD	Maryland	VI	Virgin Islands
ME	Maine	VT	Vermont
MH	Marshall Islands	WA	Washington
MI	Michigan	WI	Wisconsin
MN	Minnesota	WV	West Virginia
MO	Missouri	WY	Wyoming

APPENDIX B: XML SCHEMAS

The following sections contain the XML schema documents (XSD) and document type definitions (DTD) for the XML versions of the inventory request message and the inventory report message

B1 INVENTORY REQUEST MESSAGE

B1.1 INVENTORY REQUEST MESSAGE XML SCHEMA DOCUMENT

The following is the XSD for the XML version of the inventory request message.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" elementFormDefault="qualified">
  <xs:element name="request">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="identification">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="messageType" type="xs:string"/>
              <xs:element name="messageVersion" type="xs:string"/>
              <xs:element name="requestId" type="xs:int"/>
              <xs:element name="requestName" type="xs:string"/>
              <xs:element name="reportingFrequency" type="frequency"/>
              <xs:element name="days" type="days" minOccurs="0"/>
              <xs:element name="productCount" type="xs:int"/>
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="product" minOccurs="0" maxOccurs="unbounded">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="productName" type="xs:string"/>
              <xs:element name="brandName" type="xs:string" minOccurs="0"/>
```

```
                        <xs:element name="ndc" type="xs:string" minOccurs="0"/>
                    </xs:sequence>
                </xs:complexType>
            </xs:element>
        </xs:sequence>
    </xs:complexType>
</xs:element>
<xs:simpleType name="frequency">
    <xs:restriction base="xs:string">
        <xs:enumeration value="MONTHLY"/>
        <xs:enumeration value="WEEKLY"/>
        <xs:enumeration value="DAILY"/>
    </xs:restriction>
</xs:simpleType>
<xs:simpleType name="days">
    <xs:restriction base="xs:token">
        <xs:pattern value="((MON|TUES|WEDNES|THURS|FRI|SATUR|SUN)DAY)?(;TUESDAY)?(;WEDNESDAY)?(;THURSDAY)?(;FRIDAY)?(;SATURDAY)?(;SUNDAY)?"/>
    </xs:restriction>
</xs:simpleType>
</xs:schema>
```

B1.2 INVENTORY REQUEST MESSAGE DOCUMENT TYPE DEFINITION

The following is the DTD for the XML version of the inventory request message.

```
<?xml version="1.0" encoding="UTF-8"?>
<!ELEMENT request (identification, product*)>
<!ELEMENT identification (messageType, messageVersion, requestId, requestName, reportingFrequency, days?, productCount)>
<!ELEMENT messageType (#PCDATA)>
<!ELEMENT messageVersion (#PCDATA)>
<!ELEMENT requestId (#PCDATA)>
<!ELEMENT requestName (#PCDATA)>
<!ELEMENT reportingFrequency (#PCDATA)>
<!ELEMENT days (#PCDATA)>
<!ELEMENT productCount (#PCDATA)>
```

```
<!ELEMENT product (productName, brandName?, ndc?)>
<!ELEMENT productName (#PCDATA)>
<! ELEMENT brandName (#PCDATA)>
<! ELEMENT ndc (#PCDATA)>
```

B2 INVENTORY REPORT MESSAGE

B2.1 INVENTORY REPORT MESSAGE XML SCHEMA DOCUMENT

The following is the XSD for the XML version of the inventory report message.

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" elementFormDefault="qualified">
        <xs:element name="report">
                <xs:complexType>
                        <xs:sequence>
                                <xs:element name="identification">
                                        <xs:complexType>
                                                <xs:sequence>
                                                        <xs:element name="messageType" type="xs:string"/>
                                                        <xs:element name="messageVersion" type="xs:string"/>
                                                        <xs:element name="requestId" type="xs:int"/>
                                                        <xs:element name="projectArea" type="projectArea"/>
                                                        <xs:element name="reportingDate" type="dateTime"/>
                                                        <xs:element name="creationDate" type="dateTime"/>
                                                        <xs:element name="reportCount" type="xs:int"/>
                                                </xs:sequence>
                                        </xs:complexType>
                                </xs:element>
                                <xs:element name="count" minOccurs="0" maxOccurs="unbounded">
                                        <xs:complexType>
                                                <xs:sequence>
                                                        <xs:element name="facilityName" type="xs:string"/>
                                                        <xs:element name="locationJurisdictionType" type="locationJurisdictionType"/>
                                                        <xs:element name="facilityTypeCode" type="facilityTypeCode" minOccurs="0"/>
                                                        <xs:element name="zipCode" type="zipCode"/>
                                                        <xs:element name="productDescription" type="xs:string"/>
```

```xml
                                                        <xs:element name="ndc" type="xs:string" minOccurs="0"/>
                                                        <xs:element name="lotNumber" type="xs:string" minOccurs="0"/>
                                                        <xs:element name="expirationYear" type="year" minOccurs="0"/>
                                                        <xs:element name="expirationMonth" type="month" minOccurs="0"/>
                                                        <xs:element name="expirationDay" type="day" minOccurs="0"/>
                                                        <xs:element name="productName" type="xs:string" minOccurs="0"/>
                                                        <xs:element name="catalogStockNumber" type="xs:string" minOccurs="0"/>
                                                        <xs:element name="size" type="xs:string" minOccurs="0"/>
                                                        <xs:element name="unitsPerCase" type="xs:int" minOccurs="0"/>
                                                        <xs:element name="onHandCases" type="xs:int" minOccurs="0"/>
                                                        <xs:element name="onHandUnits" type="xs:int" minOccurs="0"/>
                                                </xs:sequence>
                                        </xs:complexType>
                                </xs:element>
                        </xs:sequence>
                </xs:complexType>
        </xs:element>
        <xs:simpleType name="year">
                <xs:restriction base="xs:token">
                        <xs:pattern value="(19|20)\d\d"/>
                </xs:restriction>
        </xs:simpleType>
        <xs:simpleType name="month">
                <xs:restriction base="xs:token">
                        <xs:pattern value="(0[1-9]|1[012])"/>
                </xs:restriction>
        </xs:simpleType>
        <xs:simpleType name="day">
                <xs:restriction base="xs:token">
                        <xs:pattern value="(0[1-9]|1[0-9]|2[0-9]|3[01])"/>
                </xs:restriction>
        </xs:simpleType>
        <xs:simpleType name="dateTime">
                <xs:restriction base="xs:token">
                        <xs:pattern value="(((19|20)\d\d)[-](0[1-9]|1[012])[-](0[1-9]|1[0-9]|2[0-9]|3[01])[ ]((0-1][0-9]|2[0-3])[:][0-5][0-9][:][0-5][0-9])"/>
                </xs:restriction>
        </xs:simpleType>
        <xs:simpleType name="zipCode">
                <xs:restriction base="xs:token">
```

```
                                <xs:pattern value="(\d{5}([-]\d{4})?)"/>
                        </xs:restriction>
                </xs:simpleType>
                <xs:simpleType name="locationJurisdictionType">
                        <xs:restriction base="xs:string">
                                <xs:enumeration value="STATE"/>
                                <xs:enumeration value="REGIONAL"/>
                                <xs:enumeration value="LOCAL"/>
                        </xs:restriction>
                </xs:simpleType>
                <xs:simpleType name="facilityTypeCode">
                        <xs:restriction base="xs:string">
                                <xs:enumeration value="ALTCARE"/>
                                <xs:enumeration value="COMMPHARM"/>
                                <xs:enumeration value="COMMCLNC"/>
                                <xs:enumeration value="CORRECTIONS"/>
                                <xs:enumeration value="EMS"/>
                                <xs:enumeration value="FEDFAC"/>
                                <xs:enumeration value="FEDHLTHCLNC"/>
                                <xs:enumeration value="HOSP"/>
                                <xs:enumeration value="HIS"/>
                                <xs:enumeration value="LHD"/>
                                <xs:enumeration value="NURSHOME"/>
                                <xs:enumeration value="OTHR"/>
                                <xs:enumeration value="POD-C"/>
                                <xs:enumeration value="POD-O"/>
                                <xs:enumeration value="PRIVPHYS"/>
                                <xs:enumeration value="STRGFAC"/>
                                <xs:enumeration value="TRIBAL"/>
                                <xs:enumeration value="VISITNURS"/>
                        </xs:restriction>
                </xs:simpleType>
                <xs:simpleType name="projectArea">
                        <xs:restriction base="xs:string">
                                <xs:enumeration value="AK"/>
                                <xs:enumeration value="AL"/>
                                <xs:enumeration value="AR"/>
                                <xs:enumeration value="AS"/>
                                <xs:enumeration value="AZ"/>
```

```
<xs:enumeration value="CA"/>
<xs:enumeration value="CHI"/>
<xs:enumeration value="CO"/>
<xs:enumeration value="CT"/>
<xs:enumeration value="DC"/>
<xs:enumeration value="DE"/>
<xs:enumeration value="FL"/>
<xs:enumeration value="FM"/>
<xs:enumeration value="GA"/>
<xs:enumeration value="GU"/>
<xs:enumeration value="HI"/>
<xs:enumeration value="IA"/>
<xs:enumeration value="ID"/>
<xs:enumeration value="IL"/>
<xs:enumeration value="IN"/>
<xs:enumeration value="KS"/>
<xs:enumeration value="KY"/>
<xs:enumeration value="LA"/>
<xs:enumeration value="LOS"/>
<xs:enumeration value="MA"/>
<xs:enumeration value="MD"/>
<xs:enumeration value="ME"/>
<xs:enumeration value="MH"/>
<xs:enumeration value="MI"/>
<xs:enumeration value="MN"/>
<xs:enumeration value="MO"/>
<xs:enumeration value="MP"/>
<xs:enumeration value="MS"/>
<xs:enumeration value="MT"/>
<xs:enumeration value="NC"/>
<xs:enumeration value="ND"/>
<xs:enumeration value="NE"/>
<xs:enumeration value="NH"/>
<xs:enumeration value="NJ"/>
<xs:enumeration value="NM"/>
<xs:enumeration value="NV"/>
<xs:enumeration value="NY"/>
<xs:enumeration value="NYC"/>
<xs:enumeration value="OH"/>
```

```
                                    <xs:enumeration value="OK"/>
                                    <xs:enumeration value="OR"/>
                                    <xs:enumeration value="PA"/>
                                    <xs:enumeration value="PR"/>
                                    <xs:enumeration value="PW"/>
                                    <xs:enumeration value="RI"/>
                                    <xs:enumeration value="SC"/>
                                    <xs:enumeration value="SD"/>
                                    <xs:enumeration value="TN"/>
                                    <xs:enumeration value="TX"/>
                                    <xs:enumeration value="UT"/>
                                    <xs:enumeration value="VA"/>
                                    <xs:enumeration value="VI"/>
                                    <xs:enumeration value="VT"/>
                                    <xs:enumeration value="WA"/>
                                    <xs:enumeration value="WI"/>
                                    <xs:enumeration value="WV"/>
                                    <xs:enumeration value="WY"/>
                            </xs:restriction>
                    </xs:simpleType>
            </xs:schema>
```

B2.2 INVENTORY REPORT MESSAGE DOCUMENT TYPE DEFINITION

The following is the DTD for the XML version of the inventory report message.

```
<?xml version="1.0" encoding="UTF-8"?>
<!ELEMENT report (identification, count*)>
<!ELEMENT identification (messageType, messageVersion, requestId, projectArea, reportingDate, creationDate,reportCount)>
<!ELEMENT messageType (#PCDATA)>
<!ELEMENT messageVersion (#PCDATA)>
<!ELEMENT requestId (#PCDATA)>
<!ELEMENT projectArea (#PCDATA)>
<!ELEMENT reportingDate (#PCDATA)>
<!ELEMENT creationDate (#PCDATA)>
<!ELEMENT reportCount (#PCDATA)>
```

```
<!ELEMENT count (facilityName, locationJurisdictionType, facilityTypeCode?, zipCode, productDescription, ndc?, lotNumber?, expirationYear?, expirationMonth?,
expirationDay?, productName?, catalogStockNumber?, size?, unitsPerCase?, onHandCases?, onHandUnits?)>
<!ELEMENT facilityName (#PCDATA)>
<!ELEMENT locationJurisdictionType (#PCDATA)>
<!ELEMENT facilityTypeCode (#PCDATA)>
<!ELEMENT zipCode (#PCDATA)>
<!ELEMENT productDescription (#PCDATA)>
<!ELEMENT ndc (#PCDATA)>
<!ELEMENT lotNumber (#PCDATA)>
<!ELEMENT expirationYear (#PCDATA)>
<!ELEMENT expirationMonth (#PCDATA)>
<!ELEMENT expirationDay (#PCDATA)>
<!ELEMENT productName (#PCDATA)>
<!ELEMENT catalogStockNumber (#PCDATA)>
<!ELEMENT size (#PCDATA)>
<!ELEMENT unitsPerCase (#PCDATA)>
<!ELEMENT onHandCases (#PCDATA)>
<!ELEMENT onHandUnits (#PCDATA)>
```

APPENDIX C: IDE STARTUP GUIDE

The IDE startup guide identifies the steps a project area must take to begin participating in the IDE process.   CDC is providing a test environment to enable project areas to assess their inventory data exchange capabilities using non-production data.

Project areas participating in IDE must take the following steps:

1. Select the desired message encoding format.

    o   Choices are delimited text format and XML format. (See Section 2.4 Message Formats.)

2. Select the desired request message transfer method.

    o   Choices are email and PHINMS.   (See Section 3.3 Inventory Request Message Transfer Mechanism.)

3. Set up PHINMS for communication with CDC IDE.

    o   See Appendix D: PHINMS Setup Guide.

4. Develop a system or component that uses the selected message encoding format and is capable of:

    o   Receiving an inventory request message via the selected request message transfer method

    o   Processing the inventory request message (See Section 3 CDC Inventory Request above.)

    o   Generating an inventory report message (See Section 4 Project Area Inventory Report above.)

    o   Sending an inventory report message via PHINMS

5. Verify the IDE instance is pointed to the PHINMS staging receiver for testing.

6. Complete the IDE Participation Form in Appendix E and email it to the CTS Help Desk at CTSHelp@cdc.gov. An electronic copy of the form is available.

    o   CDC will use information collected in the IDE Participation Form to send a test inventory request message to the project area.

7. Receive and process the test inventory request message sent from CDC.   Send an inventory report message to the PHINMS staging server at CDC.

- o The counts in the inventory report message should be synthetic and not actual product counts.

- o An email from CDC will be sent acknowledging a successful inventory report message or defining errors found in the report.

- o Examine the email from CDC. If there are errors, correct the errors and re-send the report until a successful result is obtained.

8. Verify the IDE instance is pointed to the PHINMS production receiver.

9. Send an email to the CTS Help Desk at CTSHelp@cdc.gov requesting participation in CDC IDE production.

- o CDC will grant access to CDC IDE production and send the currently active production inventory request message to the project area using the request message transfer method specified in the IDE Participation Form.

10. Receive and process the production inventory request message sent by CDC. Begin generating and sending inventory report messages to the PHINMS production receiver in response to the received inventory request message at the requested frequency.

- o CDC will send a return email for each inventory report message received acknowledging a successful inventory report message or defining errors found in the report.

APPENDIX D: PHINMS SETUP GUIDE

The PHINMS setup guide is targeted for project areas that have a working PHINMS installation and need to configure PHINMS to exchange IDE requests and reports with CDC. Any project areas that do not have an active PHINMS installation should contact the CDC PHINMS Support Team at:

- CDC PHINMS Support Email – PHINTech@cdc.gov

- CDC PHINMS Support Telephone – (800) 532-9929

D1 RECEIVING IDE REQUESTS

Note: This section is only for those project areas that will receive IDE requests via PHINMS. Project areas that will receive IDE requests visa email should proceed to Section D2 Sending IDE Reports.

PHINMS provides two methods for a partner to receive data: a) Route Not Read (RNR) Polling and b) Direct Send. RNR Polling is a simple, robust method used by many partners securely reporting to CDC. It is similar in operation to an email client using POP3 protocol to check email on a remote server. RNR Polling has limitations that include a 10mb max file size.
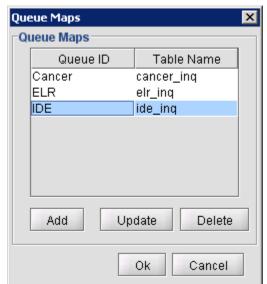
Direct Send provides more flexibility for secure messaging exchange with CDC as well as other partners. However, this flexibility requires additional installation and configuration: a proxy server and ISAPI forwarder should be placed between the Internet and the PHINMS receiver within the partner network (DMZ). These provide authentication and http traffic forwarding capabilities. Also, inbound port 443 (used for secure https) must be opened on the partner's outer firewall. This allows other PHINMS senders to connect to the partner's PHINMS receiver. Lastly, port 8009 must be opened on the internal firewall, allowing the ISAPI forwarder to forward traffic to the PHINMS receiver

This section will outline the configuration updates needed for *existing* RNR Pollers and DS Receivers. For detailed instructions on setting up new RNR Pollers or DS Receivers, please visit the PHINMS website www.cdc.gov/phin/phinms.

D1.1 DIRECT SEND METHOD – CONFIGURE TO RECEIVE REQUESTS
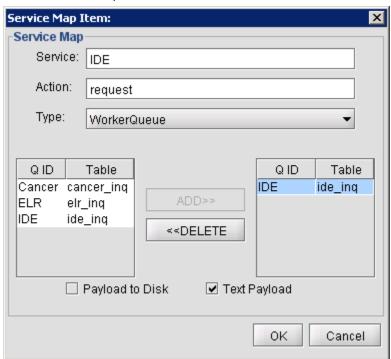
Note: This section assumes you are already receiving data from CDC using PHINMS. For new connections, please contact PHINMS support at Phintech@cdc.gov.

1. Create a new table called IDE_inq in your database.
2. Open the PHINMS Console.
3. Click on Configure -> Receiver -> Worker Queues.
4. On the Database Tab, choose your database, click Update.
5. On the Database Configuration screen, click on Queue Maps for This Database.

6. Add a new queue called IDE as shown below.

7. Choose OK until you are back at the Receiver Configuration screen.
8. Create a new Service Map using the following values:
   a. Service= IDE
   b. Action= request
   c. Type = WorkerQueue
   d. Select the IDE queue and add it to the right side.
   e. Check Text Payload.

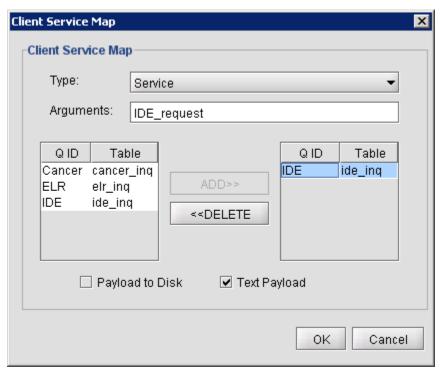9. Click OK until you are back at the main console.
10. Restart PHINMS.

D1.2 RNR POLLER METHOD – CONFIGURE TO RECEIVE REQUESTS

Note: This section assumes you are already polling the CDC. For new connections, please contact PHINMS support at Phintech@cdc.gov.

1. Create a new table called IDE_inq in your database.
2. Open the PHINMS Console.
3. Click on Configure -> Sender -> Route Not Read.
4. On the Database Tab, choose your database, click Update.
5. On the Database Configuration screen, click on Queue Maps for This Database.
6. Add a new queue called IDE as shown below.

7. Choose OK until you are back at the Sender Configuration screen.
8. Click on the Service Map tab.
9. Create a new Service Map using the following values:
    a. Type = Service
    b. Arguments = IDE_request
    c. Select the IDE queue and add it to the right side.
    d. Check Text Payload.

10. Click OK until you are back at the main console.
11. Restart PHINMS.

D2 SENDING IDE REPORTS

These configurations are valid for both Direct Sender and RNR Poller methods. CDC has two PHINMS receivers which are capable of receiving IDE data.

- **Staging** – This receiver is for testing. Project areas should use staging to:

  o Complete "Hello World" tests

  o Test and validate exchange message constructions

  o Complete CTS IDE testing

- **Production** – This receiver is for operational purposes and is used to receive live or production IDE data files.

D2.2 TRANSPORT QUEUE VALUES CONFIGURATION

Many project areas insert new records directly into the PHINMS *Transportq_out* table. These project areas will need to configure their applications to insert new outgoing records using the values listed in the following table.

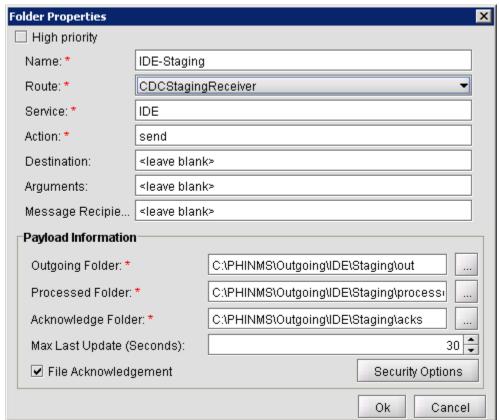| Table Column Name	Values for Staging Receiver	Values for Production Receiver
RouteInfo	CDCStagingReceiver	CDCProductionReceiver
Service	IDE	IDE
Action	send	Send
PublicKeyLdapDN	CN=CDC PHINMS	CN=CDC PHINMS

Notes:

- **The values are case-sensitive. There is a space between "CN=CDC" and "PHINMS".**

- **The table column name for "Arguments" is not listed because it does not require any value to be set (by default, it takes a SQL value of null).**
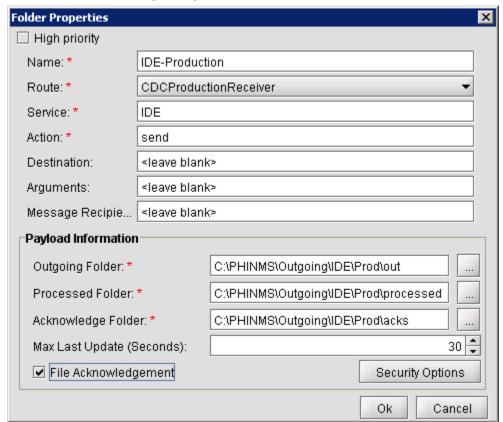
D2.2 FOLDER POLLING VALUES CONFIGURATION

Some project areas use PHINMS Folder Polling to send data to partners. These project areas will need to configure a new Folder Polling configuration to send IDE data.

1. Click on Configure -> Sender -> Folder Polling.
2. Check "Folder Based Polling" and click "Add".
3. Configure the new folder mapping using the following values:
   a. Staging Folder Polling Configuration

* **Payload Folder values for outgoing data can be substituted based on your project area's requirements.**

  b. Production Folder Polling Configuration

* Payload Folder values for outgoing data can be substituted based on your project area's requirements.

  4. Click on "Security Options".

  5. Check "Encrypt Message".

  6. Common Name = CDC PHINMS

7. Click OK.
8. Save your configurations.
9. Restart PHINMS.

APPENDIX E: IDE PARTICIPATION FORM

Every project area with its own inventory management system must provide setup information for its IDE participation by completing this form and emailing it to the CTS Help Desk at CTSHelp@cdc.gov.

Note: An electronic version of this form is available and should have accompanied this document. If you do not have the electronic version, please contact the CTS Help Desk at CTSHelp@cdc.gov to receive it.

Item	Value
Project Area Name	
Primary Contact Name	
Primary Contact Email Address	
Primary Contact Telephone Number	
Message Encoding Format (Choose one by placing an X before it)	_____ Delimited Text _____ XML
Request Message Transfer Method (Choose one by placing an X before it)	_____ Email _____ PHINMS
Project Area Test Notification Email Address (Specify one only)	
Project Area Test PHINMS Sender Party Identifier	
Project Area Test PHINMS Receiver Party Identifier (Required if Request Message Transfer Method is PHINMS)	
Project Area Production Notification Email Address (Specify one only)	
Project Area Production PHINMS Sender Party Identifier	
Project Area Production PHINMS Receiver Party Identifier (Required if Request Message Transfer Method is PHINMS)	